

1 in -- well, MTBE in well -- Wells MW-6 and
2 MW-14, I noted they are offsite wells.

3 And a TBA detection in MW-7,
4 and I noted that's an offsite well.

5 Q. And then moving down to the
6 bold indented line, it says, "MTBE detected
7 in all offsite, and offsite wells, except
8 MW-17."

9 Do you see that?

10 A. I do.

11 Q. And there's a handwritten note
12 that looks like it says, "Plus MW-8."

13 Is that referring to the line
14 above where the handwriting is?

15 A. Yes, it is.

16 Q. All right.

17 And that notation means to you
18 that at some point in time, there were
19 detections in all -- in offsite wells except
20 MW-17 and MW-8; am I correct?

21 A. That's correct.

22 Q. I notice, now, going to the
23 next section, which is entitled
24 "Remediation" -- do you see that?

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE:

Methyl Tertiary Butyl: Master File No. 1:00-1898
Ether ("MTBE") : MDL NO. 1358 (SAS)
Products Liability : M21-88
Litigation :

This Document Relates to:
Orange County Water District
v. Unocal Corporation, et al.,
S.D.N.Y. No. 04 Civ. 4968 (SAS)

CONFIDENTIAL
(Per 2004 MDL 1358 Order)

Tuesday, December 2, 2008

Videotaped Deposition of DAVID P. BOLIN,
Volume 18, OCWD'S 30(b)(6) DESIGNEE re Focus Plumes
2, 4 and 10, held in the law offices of Latham &
Watkins, 650 Town Center Drive, Suite 2000, Costa
Mesa, California, beginning at 10:04 a.m., before
Sandra Bunch VanderPol, RPR, RMR, CRR, CSR #3032.

GOLKOW TECHNOLOGIES, INC.
877.370.3377 ph|917.591.5672 fax
deps@golkow.com

1 defendants do not accept the District's definition of
2 a plume, they have made their designations in good
3 faith based on the final list that they received on
4 April 23rd, 2007."

5 Do you have any information about the
6 District -- the designations selected by the --
7 withdraw that.

8 Do you have any information about the
9 District's list of focus plumes that was received by
10 defendants on April 23rd, 2007?

11 A. Well, I don't know. I would actually
12 have to see the letter to be able to comment on it.

13 Q. Okay. We will rectify that later on.

14 Does the District believe that there are
15 actual or threatened -- that there are wells that are
16 threatened with contamination by MTBE by station
17 6160?

18 MR. EICKMEYER: Object to that as calling
19 for expert opinion and lack of foundation. Premature
20 for expert discovery.

21 I will let him answer as to his own personal
22 knowledge, if any. Go ahead.

23 THE WITNESS: I'm not an expert in fate and
24 transport analysis, but I know that MTBE and TBA were
25 released at this site. I know that it got into

1 groundwater. I know that the MTBE and TBA
2 contamination -- groundwater contamination has moved
3 off site. And I know that there are wells that are
4 in proximity to this station. So I believe that all
5 wells that can draw water that's contaminated with
6 MTBE and TBA is -- are threatened.

7 BY MR. FINSTEN:

8 Q. And have you identified any wells
9 which are -- that can draw water in the proximity to
10 this station that are threatened?

11 MR. EICKMEYER: The same objections.

12 Go ahead, to your own personal knowledge, if
13 you can.

14 THE WITNESS: I'm not a capture zone
15 analysis expert either, and so I don't know which of
16 the wells are drawing water specifically from water
17 that has been contaminated by MTBE and TBA from this
18 site. So I can't comment which of the wells are
19 specifically drawing water, but all the ones in
20 proximity to this station are threatened.

21 BY MR. FINSTEN:

22 Q. Looking at Exhibit 291. You
23 identified four wells as nearby wells. First -- I'm
24 sorry. Laying the foundation.

25 Did you prepare Exhibit 291 yourself?

1 A. Yes, I did.

2 Q. Okay. And you identified four wells
3 on -- on Exhibit 291 as nearby to station 6160,
4 correct?

5 A. That's correct.

6 Q. Why did you choose those four wells?

7 A. Because these four wells are nearby
8 ARCO Station 6160.

9 Q. And how did you define "nearby"?

10 A. I did not specify a distance
11 limit from ARCO Station 6160. I just looked at some
12 wells that are in close proximity to the station so I
13 could glean some hydrogeologic information about
14 that area.

15 Q. Looking at Exhibit 290. Are all four
16 of the wells that you identified as nearby located on
17 that exhibit?

18 MR. EICKMEYER: Counsel, are you referring
19 to the first page or are you talking about --

20 MR. FINSTEN: Well, let's --

21 MR. EICKMEYER: -- anywhere in 290?

22 MR. FINSTEN: -- start with the first page.

23 MR. EICKMEYER: So you're asking -- let's
24 clarify. You're asking if the wells on the top of
25 291 are also shown on 290?

1 to be missing a copy of that, which is really kind of
2 a shame, because I was hoping to be able to flip
3 between 300 and 301. Oh, here it is.

4 (Exhibit No. 301 was marked.)

5 MR. FINSTEN: And while we are at it, let's
6 do 302.

7 (Exhibit No. 302 was marked.)

8 MR. EICKMEYER: 301 is General Well
9 Information?

10 THE WITNESS: Yes.

11 MR. EICKMEYER: 302, Well Specifications.

12 MR. FINSTEN: And while we are at it, let's
13 do 303 also, and we will have all the documents that
14 you produced this morning sequentially.

15 (Exhibit No. 303 was marked.)

16 BY MR. FINSTEN:

17 Q. And just to identify them on the
18 record, 300 is a -- several pages, one, two, three,
19 four -- four pages of maps that you brought with you
20 to the deposition this morning; is that correct?

21 A. Exhibit 300 is four pages of maps.

22 Q. And these were produced similar to
23 the other two stations? You produced pages 2, 3 and
24 4, and had page 1 of this exhibit produced for you
25 with assistance from --

1 Nearby Wells, Well Specification?

2 A. Yes, I did.

3 Q. And you created Exhibit 303, which
4 are the notes for ARCO 6036?

5 A. Yes.

6 Q. Starting with Exhibit 300. On page 2
7 of Exhibit 300, I am seeing seven labeled wells; is
8 that correct?

9 A. I see the same number of wells.

10 Q. And are these wells listed on
11 Exhibit 301, Nearby Wells General Information?

12 A. I don't know if they are all on
13 there. It was not my intention to be all inclusive
14 with Exhibit 301. So I don't know if they are all on
15 here.

16 Q. It would appear to be super inclusive
17 as to at least page 2 of Exhibit 300, because there
18 are numerous other wells on Exhibit 301.

19 What were the criteria you used to include
20 wells on Exhibit 301?

21 A. Just wells that are in close
22 proximity to the site. The way the system works is I
23 just highlight an area, and all the wells in that
24 area will -- the data for those wells will come up
25 into a report, which I transferred to this table.

1 BY MR. FINSTEN:

2 Q. And does the District believe that
3 contamination has escaped remediation at this site?

4 MR. EICKMEYER: Speculation. Lacking
5 foundation. Personal knowledge. Calling for expert
6 opinion.

7 Go ahead, if you can.

8 THE WITNESS: Yes.

9 BY MR. FINSTEN:

10 Q. And upon what does the District base
11 that belief?

12 A. Based on information and data that
13 was provided by ARCO's consultants, who have been
14 doing work at this site, that there is MTBE
15 contamination off site to the west and southwest of
16 the site. And that -- that the remediation
17 activities at the site, which are predominantly soil
18 vapor extraction but also did include dual-phase
19 extraction, did not capture or contain that
20 contamination to prevent it from moving off site.

21 MR. FINSTEN: We are up to Exhibit 304; is
22 that right?

23 THE REPORTER: Yes.

24 MR. FINSTEN: I'd like to mark Exhibit 304.

25 (Exhibit No. 304 was marked.)

1 Q. Do you know when that was?

2 A. 2005.

3 Q. Let's go back to Exhibit 304. And I
4 apologize. My pages are somehow out of order, which
5 is going to make this somewhat difficult. But I'm
6 trying to keep it straight.

7 Figure 7, which is on -- I'm sorry.
8 Figure 6, which is on Bates page ending 267032. Do
9 you see that page where I'm talking about?

10 A. Yes, I do.

11 Q. And does the District contend that
12 there's -- I'm sorry.

13 Which direction does the District believe
14 that MTBE has escaped contamination?

15 MR. EICKMEYER: Objection. Calls for expert
16 opinion. Lack of foundation. Personal knowledge.

17 Go ahead.

18 THE WITNESS: Well, I don't know all the
19 directions in which MTBE has escaped the site, but it
20 has escaped at least to the west and to the
21 southwest.

22 BY MR. FINSTEN:

23 Q. And what wells has it been impacted
24 that have led you to that conclusion?

25 MR. EICKMEYER: Objection. Calls for expert

1 conclusion. Premature expert opinion. Lack of
2 personal knowledge. Foundation. Speculation.

3 Go ahead.

4 THE WITNESS: There are four off-site well
5 locations, and MTBE has been detected in three -- or,
6 I'm sorry, there's five of them. MTBE has been
7 detected in four of the five wells.

8 BY MR. FINSTEN:

9 Q. And those wells off site would be?

10 A. MW-8, -9, -10 and VA-2S and -2D.

11 Q. And when were those wells impacted?

12 MR. EICKMEYER: Same objections.

13 Go ahead.

14 THE WITNESS: MTBE was detected -- was first
15 tested -- let's see. Maybe it was first detected in
16 MW-8 in 2001, in MW-9 was 2001 and MW-10 was 1999.
17 And VA-2S and 2DS were detected -- oh, in 2S it was
18 detected in 2002 and in 2D it was detected in 2005.

19 BY MR. FINSTEN:

20 Q. And focusing on 2S and 2D, which are
21 the furthest monitoring wells, I believe, from the
22 station. Does that appear right to you?

23 A. In that westerly direction, that
24 would be correct. In the southwest direction, the
25 furthest would be MW-9.

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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Wednesday, December 3, 2008

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Volume 19, OCWD'S 30(b)(6) DESIGNEE re Focus Plume
#1, held in the law offices of Latham & Watkins,
650 Town Center Drive, Suite 2000, Costa Mesa,
California, beginning at 9:09 a.m., before Sandra
Bunch VanderPol, RPR, RMR, CRR, CSR #3032.

GOLKOW TECHNOLOGIES, INC.
877.370.3377 ph|917.591.5672 fax
deps@golkow.com

1 Chevron sign associated with Texaco 3311.

2 MR. SAWYER: Maybe it's because it's blown
3 up. I don't see it on mine.

4 MR. ANDERSON: I mean, if we could get that
5 on camera, that would be classic, but it's right
6 there on the left-hand corner.

7 MR. SAWYER: Don't put the camera on me.
8 Thank you. I didn't wear my Armani suit today.

9 THE WITNESS: I don't know. That's a good
10 question. It looks like it's the wrong symbol.

11 MR. ANDERSON: Thank you.

12 Q. Does OCWD think that MTBE allegedly
13 released from this station threatened any nearby
14 drinking water wells?

15 MR. SAWYER: Objection. Improper contention
16 question. Vague and ambiguous. Lack of foundation.
17 I also object to the extent it asks for expert
18 opinion testimony, in view of the current procedural
19 status of the case.

20 You can provide personal observations, but
21 please do not provide any expert opinions on behalf
22 of the District.

23 THE WITNESS: I'm not a fate and transport
24 expert or a capture zone analysis expert, but I
25 believe that the wells that are in proximity to the

1 station are threatened, insofar that there's been a
2 release of MTBE and TBA into groundwater from the
3 site. It's -- it's escaped the site. It's moved off
4 site. And it -- there is potential for being
5 captured by one or more of the wells. So should MTBE
6 be detected in one of those wells, this site, Unocal
7 4727, is certainly a candidate for that detection.

8 BY MR. ANDERSON:

9 Q. What other wells would be a candidate
10 for that detection?

11 A. Well, any of the wells that could be
12 drawing water that's contaminated by MTBE that would
13 flow to within the capture zone of those wells.

14 Q. And that was a bad question. I
15 meant, which other stations would be a candidate for
16 the source of that detection?

17 A. Well, it -- it depends on which wells
18 you're talking about. In a station that's had a
19 release of MTBE and TBA into groundwater and where
20 the contamination is shown to have moved off site and
21 escaped any remediation at that station, can be
22 captured by any well in which that contaminated
23 groundwater flows to within the capture zone.

24 Q. So I take it you would have to do
25 further investigation to determine which stations

Thrifty #368

6311 Westminster Blvd, Westminster

Site had **multiple fuel leaks** from 1988 to 2003: fuel leaks were detected or identified in 1988, 1992, & 2003; and were indicated between 1991 & 2003: excess variations in inventory reconciliations in 1991 & 1993; inventory reconciliation failures reported 1997; gross failures of all spill-bucket tests in 2003.

Site had **>100 UST & facility inspection failures or violations** in 48 inspections including **failed UST integrity tests** between 11/16/1988 & 11/6/2003.

Free product identified on site and off site in 1992.

OCHCA issued at "pre-NOV" (1995) after numerous non-compliance and deficiency warnings over 7 years. OCHCA issues a NOV (1996) after continued non-compliance and deficiencies following "pre-NOV" (1995).

RP continued missing numerous regulated deadlines, continued non-compliance and deficiencies following NOV (1996).

RP missed numerous work plan and reporting deadlines, and did not include requested data and information in work plans and reports on multiple occasions.

MTBE 1st tested in groundwater: 2/15/96 in MW-6.

MTBE 1st detected in groundwater: 2/15/96 in MW-6 - 410 ug/L.

Max MTBE detected in a gw monitoring well: 2/4/99 in MW-6 - 10,000 ug/L.

TBA 1st tested in groundwater: 11/16/00 in BW-6R (MW-6R).

TBA 1st detected in groundwater: 11/16/00 in BW-6R (MW-6R) - 11,700 ug/L.

Max TBA detected in a gw monitoring well: 11/16/00 in BW-6R (MW-6R) - 11,700 ug/L.

1st test, 1st detection, and maximum detection of MTBE and TBA in monitoring wells located on south border of site. Groundwater direction in semi-perched zone (5 to 30 ft bgs) is S - indicates MTBE & TBA plumes migrated off-site before they were detected.

2 saturated zones are identified:

semi-perched gw zone: from ~5 to >30 ft bgs (all mont wells screened from 5 to 25 or 30 ft bgs).

Alpha Aquifer - ~79 to 90 ft bgs.

Farthest downgradient well MW-9 - 1st tested MTBE in May-96; TBA in Nov-00.

Max MTBE detected Aug-00 at 93 ug/L.

Max TBA detected Aug-01 at 109 ug/L.

Semi-perched groundwater flow direction is SSW (Komex report).

Deeper groundwater flow direction is SSE (Komex report).

Vertical groundwater gradient is down.

Remediation: 1st groundwater capture began in ~Jul-95 - after OCHCA issued "pre-NOV."

SVE + AS + gw recovery began in Jul-95.

SVE + AS + gw recovery operated Jul-95 to Jun-98.

GW remediation stopped Jun-98 because RWQCB requested re-evaluation (Thrifty, 4/21/08).

SVE + AS + gw recovery restarted / operated Aug-99 to Mar-05.

GW over purging (bailing & vacuum truck) - 3 wells since Nov-01; 2 wells since Aug-06.

Mobile HVDPE (interim remedial action for 2 months): Oct-07 to Dec-07.

MTBE and TBA groundwater plumes have migrated off site to the S (4/21/08 Thrifty - *Quarterly Status Report - 1st Quarter 2008, Thrifty Oil Co. Station #368 (Arco #9734), 6311 Westminster Boulevard, Westminster, California 92638, OCHCA Case #88UT166.*

Exhibit No.	22
Date:	8-19-08
Witness:	BOLIN
Sandra Bunch, CSR 3032	

Historic MTBE and TBA gw plumes have not been delineated laterally.
Recent MTBE and TBA gw plumes have not been delineated laterally.
MTBE and TBA gw plumes have not been delineated vertically.

Groundwater conduits are near by (potential migration paths from shallow saturated zones to deeper saturated zones):

Nearest well: W-16927 - domestic well ~850 ft S of site.

Drilled to 120 ft bgs.

Screened _unknown_ ft bgs.

pump rate - inactive, abandoned.

Nearest drinking water production well: HB-7 - ~3500 ft SW of site.

Drilled to 930 ft bgs.

Screened 263 to 551; 591 to 699; 735 to 879 ft bgs.

Pump rate - 3500 gpm.

Top of Shallow zone - ~46 ft bgs,

Bottom of Shallow zone - ~159 ft bgs.

Top of Principal Aquifer - ~169 ft bgs.

Nearest MTBE detection in drinking water production well:

HB-7: 0.16 ug/L in 2006 (LIMS).

HB-13: 0.17 ug/L in 2005 (LIMS).

Arco #6131

3201 Harbor Blvd, Costa Mesa, CA

Significant gw contam already migrated SW, downgrad, off site by time gw remediation initiated in 1998.

- historical gw flow SW.
- 1993: well B-6 installed on site at SW site margin.
 - 1993: 1st test for gw contam: TPHg 84,000 ug/L, benzene 6,800 ug/L; etc.
 - 1996: 1st tested for MTBE: 35,000 ug/L.
 - 2002: free product (sheen) appeared in well B-6.
 - 2003: overpurgings started in B-6 ~6 months after free product detected in well - stops after 2 quarters.
- 1996: well B-9 installed near off site near SW site margin.
 - 1996: 1st test for gw contam: TPHg 45,000 ug/L, benzene 5,300 ug/L; etc.
 - 1996: 1st tested for MTBE: 65,000 ug/L - 1 year after SVE/AS started in well.

GW contam, incl MTBE & TBA, already flowing SW off site >2 yrs bef any rem started at the site.

GW not captured at site, except sporadically for a few months in 2000 & 2003, >4 yrs aft gw contam detected.

MTBE and TBA have been detected in on-site well B-6 at SW site margin and in off-site well B-9 near SW site margin since 1st tested in 1996; however MTBE has not be delineated off site, downgradient to the southwest.

Site had **multiple fuel leaks** between 1990 and the present, including fuel leaks that were detected or identified on 8/22/1990, 1/11/1991, 6/27/91, 8/20/91, 1/29/92, 11/8/94, and 8/24/99; and discovered or indicated in Dec-1990.

MTBE and TBA contamination has been left in groundwater beneath the site. Site (case) was opened in 1990 for investigation and in 1998 for remediation by regulatory agency. A "no further action" (NFA) letter was issued in 2006, although Agency reports that MTBE and TBA concentration in groundwater have been fluctuating in water (MTBE - 710 ug/L and TBA - 1,300 ug/L; OCHCA, *Case Closure Summary*, 11/2/2005).

Regulatory Agency has issued at least 19 **notifications** to RP from 2/5/92 to 4/12/05 for inadequate or ineffective investigations, work plans, reports, and remediation.

No UST inspection records were available for this summary.

MTBE 1st tested in groundwater: 5/2/96 in B-6.

MTBE 1st detected in groundwater: 5/2/96 in B-6. - 35,000 ug/L.

Max MTBE detected in a gw monitoring well: 11/6/1996 in B-9 - 130,000 ug/L.

TBA 1st tested in groundwater: 9/13/00 in B-6 (*NOTE: detection limit is 20,000 ug/L - too high*).

TBA 1st detected in groundwater: 9/18/01 in B-6 - 4,800 ug/L.

Max TBA detected in a gw monitoring well: 5/15/03 in B-9 - 6,190 ug/L.

2 saturated zones are identified:

semi-perched gw zone - to ~40 ft bgs (discrete upper & lower zones appear to merge into 1 zone; Komex report).

Alpha Aquifer - ~80 to 140 ft bgs.

Downgradient well B-9 - off site to SW:

MTBE 1st tested 8/22/96.

MTBE 1st detected 8/22/1996 - 65,000 ug/L.

Max MTBE detected 11/6/1996 at 130,000 ug/L (*NOTE: maximum MTBE detected at site*).

TBA 1st tested 9/13/00 (*NOTE: detection limit is 5,000 ug/L - too high*).

TBA 1st detected 6/7/2002 - 200 ug/L.

Max TBA detected 5/15/2003 at 6,190 ug/L (*NOTE: maximum TBA detected at site*).

Semi-perched groundwater flow direction is SW (Komex report).

Deeper groundwater flow direction is NW (OCWD).

Vertical groundwater gradient is down.

Exhibit No.	24
Date:	8-19-08
Witness:	BOLIN
Sandra Bunch, CSR 3032	

Remediation: groundwater capture conducted for only ~3 months- 4th quarter 2000:

Aug-1998: SVE/AS started (7 SVE wells and 1 MW - B-6).

~Oct-00: HVDPE started - operated for ~3 months.

4 years after max MTBE detected for this site (130,000 ug/L in B-9 11/6/96 - downgrad from rem system).

~Dec-00: HVDPE stopped.

2nd Qtr-03: overpurging started in well B-6 to remove free product (sheen).

3rd Qtr-03: overpurging stopped.

Feb-05: SVE/AS stopped.

MTBE and TBA groundwater plumes have migrated off site to the SW (10/4/05 Delta Environmental - *Quarterly Update Report, Arco Facility No. 6131, 3201 Harbor Boulevard, Costa Mesa, California, OCHCA Case #92UT12.*

Historic MTBE and TBA gw plumes have not been delineated laterally.

Recent MTBE and TBA gw plumes have not been delineated laterally.

MTBE and TBA gw plumes have not been delineated vertically.

Groundwater conduits are near by (potential migration paths from shallow saturated zones to deeper saturated zones):

Nearest well to SW: HMEM-COS - monitoring well ~1,550 ft SW of site.

Drilled to 280 ft bgs.

Screen interval: unknown.

Pump rate - not a pumping well.

Sanitary seal - unknown.

Top of Shallow zone - ~43 ft bgs,

Bottom of Shallow zone - ~142 ft bgs.

Top of Principal Aquifer - ~162 ft bgs.

Nearest well: MCWD-11 - water production well - ~1,480 ft E of site.

Drilled to 1,060 ft bgs.

Screened 330 to 350; 440 to 490; 440 to 500; 510 to 750; and 760 to 1000 ft bgs.

Pump rate - 40000 gpm.

Top of Shallow zone - ~49 ft bgs,

Bottom of Shallow zone - ~120 ft bgs.

Top of Principal Aquifer - ~131 ft bgs.

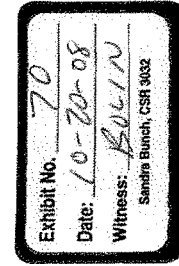
Nearest MTBE detection in drinking water production well:

MCWD-3B: 0.07 ug/L in 2005; 0.11 ug/L in 2008.

MCWD-5: 0.08 ug/L in 2005; 0.08 ug/L in 2008.

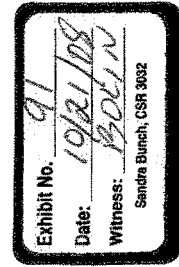
MCWD-7: 0.05 ug/L in 2005; 0.04 ug/L in 2008.

1	Mobil #18-JMY	A
2	3470 Fairview Road, Costa Mesa	
3		
4		
5	Significant MTBE and TBA groundwater contamination already migrated S, downgradient, off site toward water production wells by time groundwater capture started in 2000:	
6	- historical gw flow SE.	
7	- 1991: well BH5 installed off site near S site margin.	
8	- 1991: 1st tested for TPHg, benzene, etc. - no contamination detected.	
9	- 1993: 1st tested for MTBE - no MTBE detected.	
10	- 1997: 1st detected gw contam. TPHg 250 ug/L, benzene ND, etc.	
11	- 1997: detected MTBE: 100,000 ug/L [previously [1994 to 1997] detected at 12 to 130 ug/L]	
12	- 1993: well B-9 installed on site at S site margin.	
13	- 1993: 1st test for gw contam: TPHg 2,200 ug/L, benzene ND, etc.	
14	- 1996: 1st tested for MTBE: 3,100 ug/L	
15	- 1998: started periodic pump out of tank cavity well - 5 yrs after contam detected at site margin.	
16	- 5 years after groundwater contamination detected at downgradient site margin.	
17	- 2 years after MTBE contam detected at ~238 times MCL in groundwater at downgradient site margin.	
18	- 2000: P&T started - 1st attempt to capture groundwater contamination.	
19	- 7 years after groundwater contamination detected at downgradient site margin.	
20	- 4 years after MTBE contam detected at ~238 times MCL in groundwater at downgradient site margin.	
21	- 3 years after MTBE contam detected at ~7,500 times MCL in gw off site near downgrad site margin.	
22	GW contamination, including MTBE & TBA, flowed S off site >4 yrs before gw capture at the site.	
23	MTBE and TBA have been detected in off-site well BH5 near S site margin since MTBE 1st detected in 1994 and TBA 1st detected in 2000; however, MTBE and TBA have not been delineated off site, downgradient to the south.	
24		
25	Site had multiple fuel leaks from 1986 to 2001: fuel leaks were discovered, identified, and/or detected in 1986, 4/21/1993, 3/18 & 22/1997, and 10/25/2001.	
26		
27	Site had at least 12 UST inspection failures or violations from 8/8/1980 to 10/27/1999.	
28		
29	Site was closed and reopened 2 times (Mar-87 and 12/28/94) by regulatory agency owing to new contaminant releases or newly discovered groundwater contamination.	
30		
31	Regulatory Agency has issued at least 17 notifications to RP from 11/3/94 to 9/24/07 for inadequate or ineffective investigations, work plans, reports, and remediation.	
32		
33	MTBE 1st tested in groundwater: 3/20/93 in BH8.	
34	MTBE 1st detected in groundwater: 3/20/98 in BH8 - 600 ug/L.	
35	Max MTBE detected in a UST cavity well: 9/12/02 in TCW1 - 632,000 ug/L.	
36	Max MTBE detected in a gw monitoring well: 12/30/97 in MW11 - 480,000 ug/L.	
37		
38	TBA 1st tested in groundwater: 12/3/01 in MW1	
39	TBA 1st detected in groundwater: 12/3/01 in MW1 - 8,400 ug/L.	
40	Max TBA detected in a UST cavity well: 9/12/02 in TCW1 - 214,000 ug/L.	
41	Max TBA detected in a gw monitoring well: 1/30/01 in BH8 - 54,000 ug/L.	
42		
43	4 saturated zones are identified:	
44	perched gw zone - ~8 to 15 ft bgs	
45	semi-perched upper gw zone - ~22 to 30 ft bgs.	
46	semi-perched lower gw zone - ~55 to 73 ft bgs.	
47	Alpha Aquifer - ~79 to 90 ft bgs.	
48		



OCWD-MTBE-001-192520

A	
49	Farthest downgradient well MW-15 1st tested 6/23/95.
50	Max MTBE detected Nov-01 at 4.90 ug/L.
51	
52	Semi-perched groundwater flow direction is SE (Komex report).
53	Deeper groundwater flow direction is SW (Komex report).
54	Vertical groundwater gradient is down.
55	
56	Remediation: 1st groundwater capture began in ~Mar-00.
57	RP began periodic pump-out of selected wells in Apr-97.
58	RP began periodic pump-out of tank cavity wells in Feb-98.
59	RP initiated pump and treat gw remediation in 3/7/00 - 1st attempt at groundwater capture.
60	2 years after max MTBE detected on site (632,000 ug/L in TCW1 3/18/98).
61	3 years after elevated MTBE detected off site to S (100,000 ug/L in B5 4/30/97).
62	2 years after elevated MTBE detected off site to E (1,000 ug/L in MW-17 6/21/98).
63	RP initiated dual phase extraction between Mar-04 and Mar-05.
64	
65	MTBE and TBA groundwater plumes have migrated off site to the South (4/23/08 ETIC - Site Status, Groundwater Monitoring, and Remedial Progress Report, First Quarter 2008 (11 December 2007 to 12 March 2008), ExxonMobil Oil Corporation Service Station 18JMY, 3470 Fairview Road, Costa Mesa California 92626, OCHCA Case #94U7055.
66	
67	Historic MTBE and TBA gw plumes have not been delineated laterally.
68	Recent MTBE and TBA gw plumes have not been delineated laterally.
69	MTBE and TBA gw plumes have not been delineated vertically.
70	
71	Groundwater conduits are near by (potential migration paths from shallow saturated zones to deeper saturated zones):
72	Nearest well: W-18754 - domestic well ~200 ft SE of site.
73	Drilled to 578 ft bgs
74	Screened 489 to 492 and 504 to 509 ft bgs.
75	ump rate - unknown.
76	Nearest drinking water production well: MCWD-1B - ~625 ft E of site.
77	Drilled to 612 ft bgs.
78	Screened 305 to 335, 350 to 390, 440 to 500, 540 to 580 ft bgs.
79	Pump rate - 2060 gpm.
80	Top of Shallow zone - ~32 ft bgs.
81	Bottom of Shallow zone - ~141 ft bgs.
82	Top of Principal Aquifer - ~190 ft bgs.
83	
84	Nearest MTBE detection in drinking water production well:
85	MCWD-3B: 0.07 ug/L in 2005; 0.11 ug/L in 2008.
86	MCWD-5: 0.08 ug/L in 2005; 0.08 ug/L in 2008.
87	MCWD-7: 0.05 ug/L in 2005; 0.04 ug/L in 2008.



OCWD-MTBE-001-192540

1	Shell #6502	A
2	6502 Bolsa Ave, Huntington Beach	
3		
4		
5	Significant gw contam from site already migrated downgrad off site to the W and SW by time gw pumping initiated	
6	- W site margin B-12: 10/20/82 TPH-G 3,800 ug/L; benzene 674 ug/L	
7	- SW site margin B-13: 2/22/90 TPH-G 34,000 ug/L; benzene 8,000 ug/L	
8	- S site margin B-14: 2/22/90 TPH-G 115,000 ug/L; benzene 23,000 ug/L	
9	- S site margin B-9: 12/6/88 TPH-G 23,200 ug/L; benzene 5,000 ug/L	
10	- SW off site B-11: 9/28/89 TPH-G 31,000 ug/L; benzene 5,400 ug/L; 7/18/90 TPH-G 48,000 ug/L; benz 14,000 ug/L	
11	- WSW off site B-8: 12/6/88 TPH-G 9,100 ug/L; benzene 4,800 ug/L; 7/12/89 TPH-G 26,000 ug/L; benz 6,600 ug/L	
12	- W off site B-7: 12/6/88 TPH-G 4,600 ug/L; benzene 3,800 ug/L; 7/12/89 TPH-G 24,000 ug/L; benz 7,100 ug/L	
13		
14	Site likely had multiple fuel leaks from 1986 to 2000: UST removed and fuel leaks discovered, identified, and/or detected in 1986 and 2000	
15		
16	NO UST inspection reports available for this summary.	
17		
18	Site has never been closed by regulatory agency.	
19		
20	MTBE 1st tested in groundwater: 3/27/96 in B-9 (south margin of site)	
21	MTBE 1st detected in groundwater: 3/27/96 in B-9 - 70 ug/L	
22	Max MTBE detected in a gw monitoring well: 12/1/97 in B-16 - 1,100,000 ug/L	
23		
24	TBA 1st tested in groundwater: 12/11/00 in B-7	
25	TBA 1st detected in groundwater: 12/3/01 in B-7 - 2,500 ug/L	
26	Max TBA detected in a gw monitoring well: 3/14/01 in B-16A - 10,000 ug/L	
27		
28	3 saturated zones are identified:	
29	semi-perched upper gw zone - ~15 to 20 ft bgs.	
30	semi-perched middle gw zone - ~30 to 35 ft bgs.	
31	semi-perched lower gw zone - ~40 to 45 ft bgs.	
32		
33	Farthest downgradient well B-48A 1st tested 12/20/99	
34	Max MTBE detected Jun-00 at 61 ug/L	
35		
36	Semi-perched groundwater flow direction is NW (Komex report) and SW (WPI reports)	
37	Deeper groundwater flow direction is SW & SE (Komex report)	
38	Vertical gw gradient is locally variable - occasionally up (B-48C to B-48B) and down (B-48A to B-48B), regionally down.	
39		
40	Remediation: 1st groundwater capture began in ~Apr-80 - Pump & Treat	
41	Apr-90: started 3.5 yrs aft gw contam discovered; 1 yr aft gw treat system operational; pump from 13 wells.	
42	Aug-92: gw P&T stopped.	
43	Oct-92: RP characterized remediation effectiveness: "dissolved-phase concentrations appear to be unchanged."	
44	Jun-93: gw treatment system started again - ~1 yr after stopping; pump from 3 wells.	
45	Sep-96: gw treatment system stopped again - all compressor stolen.	
46	Jul-98: gw treatment system started again - ~2 yrs aft stopping; pump from 3 wells.	
47	Jan-99: gw treatment system discontinued operation after 6 months.	
48		
49	MTBE and TBA groundwater plumes have migrated off site to west and southwest (1/28/07 WPI - Corrective Action Plan Addendum and Well Installation Work Plan, Former Shell Service Station 6502 Bolsa Avenue (at Edwards Street) Huntington Beach, California, OCHCA Case #87U023	
50		